

HF /
All Mo
FT-817

Technical Supplement

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(E137790B)

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Introduction

This manual provides technical information necessary for servicing the Yaesu **FT-817/FT-817ND** HF & V/UHF-Bands Transceiver. It does not include information on installation and operation, which are described in the **FT-817/FT-817ND** Operating Manual provided with the transceiver, or on accessories which are described in their manuals.

The **FT-817/FT-817ND** is carefully designed to allow the knowledgeable operator to make nearly all adjustments required for various station conditions, modes and operator preferences simply from the controls on the panels, without opening the case of the transceiver. The **FT-817/FT-817ND** Operating Manual describes these adjustments, plus certain internal settings.

Servicing this equipment requires expertise in handling surface mount chip components. Attempts by unqualified persons to service this equipment may result in permanent damage not covered by warranty. For the major circuit boards, each side of the board is identified by the type of the majority of components installed on that side. In most cases one side has only chip components, and the other has either a mixture of both chip and lead compo-



nents (trimmers, coils, electrolytic capacitors, packaged ICs, etc.), or lead components only.

While we believe the technical information in this manual is correct, VERTEX STANDARD assumes no liability for damage that may occur as a result of typographical or other errors that may be present. Your cooperation in pointing out any inconsistencies in the technical information would be appreciated. VERTEX STANDARD reserves the right to make changes in this transceiver and the alignment procedures, in the interest of technological improvement, without notification of owners.

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Specifications

General

Frequency Range:

Receive: 100 kHz-30 MHz
50 MHz-54 MHz
76 MHz-108 MHz (WFM only)
87.5 MHz-108 MHz (EU)
108 MHz-154 MHz (USA)
144 MHz-148 (146) MHz (Other markets)
430 (420) MHz-450 (440) MHz

Transmit: 160-6 Meters
2 Meters
70 Centimeters (Amateur bands only)
5.1675 MHz Alaska Emergency Frequency
(USA only)

Emission Modes:

A1 (CW), A3 (AM), A3J (LSB/USB), F3 (FM),
F1 (9600 bps packet), F2 (1200 bps packet)

Synthesizer Steps (Min.):

10 Hz (CW/SSB), 100 Hz (AM/FM)

Antenna Impedance:

50 Ohms, Unbalanced (Front: Type BNC, Rear: Type M)

Operating Temp. Range:

-10 °C to +60 °C (+14 °F to +140 °F)

Frequency Stability:

±4 ppm from 1 min. to 60 min after power on.
@25 °C: 1 ppm/hour
±0.5 ppm/1 hour @25 °C, after warmup
(with optional **TCXO-9**)

Supply Voltage:

Normal: 13.8 VDC ± 15 %, Negative Ground
Operating: 8.0-16.0 V, Negative Ground
FBA-28 (w/8 "AA" Alkaline Cells): 12.0 V
FNB-72 (Ni-Cd Battery Pack): 9.6 V (Option)
FNB-85 (Ni-MH Battery Pack): 9.6 V (**FT-817ND**)

Current Consumption:

Squelched: 250 mA (Approx.)
Receive: 450 mA
Transmit: 2.0 A

Case Size (W x H x D):

135 x 38 x 165 mm (5.31" x 1.5" x 6.50")

Weight (Approx.):

1.17 kg (2.58 lb)
w/Alkaline battery, antenna, w/o Microphone

Transmitter

RF Power Output:

5 W (SSB/CW/FM), 1.5 W (AM Carrier) @13.8 V

Modulation Types:

SSB: Balanced Modulator
AM: Early Stage (Low Level)
FM: Variable Reactance

FM Maximum Deviation: ±5 kHz (FM-N: ±2.5 kHz)

Spurious Radiation: -50 dB (1.8-29.7 MHz)
-60 dB (50/144/430 MHz)

Carrier Suppression: >40 dB

Opp. Sideband Supp.: >50 dB

SSB Frequency Response: 400 Hz-2600 Hz (-6 dB)

Microphone Impedance:

200-10k Ohms (Nominal: 600 Ohms)

Receiver

Circuit Type: Double-Conversion Superheterodyne

Intermediate Frequencies:

1st: 68.33 MHz (SSB/CW/AM/FM); 10.7 MHz (WFM)
2nd: 455 kHz

Sensitivity:	SSB/CW	AM	FM
100 kHz-500 kHz	-	-	-
500 kHz-1.8 MHz	-	32 µV	-
1.8 MHz-28 MHz	0.25 µV	2 µV	-
28 MHz-30 MHz	0.25 µV	2 µV	0.5 µV
50 MHz-54 MHz	0.2 µV	2 µV	0.32 µV
144/430 MHz	0.125 µV	-	0.2 µV

(IPO, ATT off, SSB/CW/AM = 10 dB S/N, FM = 12 dB SINAD)

Squelch Sensitivity:	SSB/CW/AM	FM
1.8 MHz-28 MHz	2.5 µV	-
28 MHz-30 MHz	2.5 µV	0.32 µV
50 MHz-54 MHz	1 µV	0.2 µV
144/430 MHz	0.5 µV	0.16 µV

(IPO, ATT off)

Image Rejection: HF/50 MHz: 70 dB
144/430 MHz: 60 dB

IF Rejection: 60 dB

Selectivity (-6/-60 dB):

SSB/CW: 2.2 kHz/4.5 kHz
AM: 6 kHz/20 kHz
FM: 15 kHz/30 kHz
FM-N: 9 kHz/25 kHz
SSB (optional **YF-122S** installed): 2.3 kHz/4.7 kHz (-66 dB)
CW (optional **YF-122C** installed): 500 Hz/2.0 kHz
CW (optional **YF-122CN** installed): 300 Hz/1.0 kHz

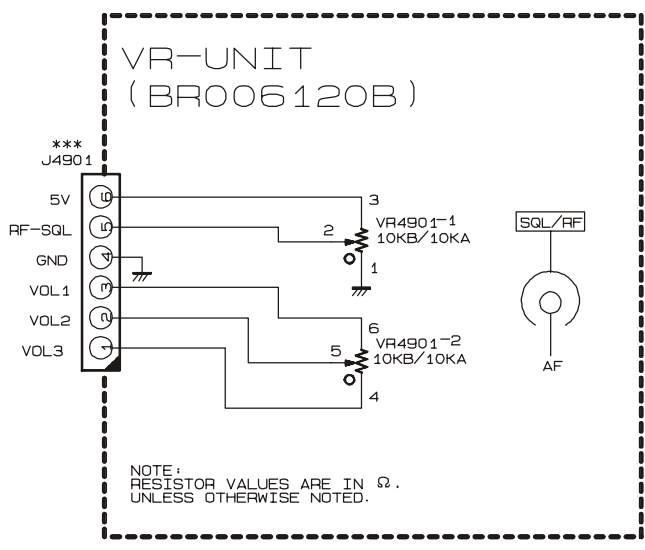
AF Output: 1.0 W (8 Ohms, 10% THD or less)

AF Output Impedance: 4-16 Ohms

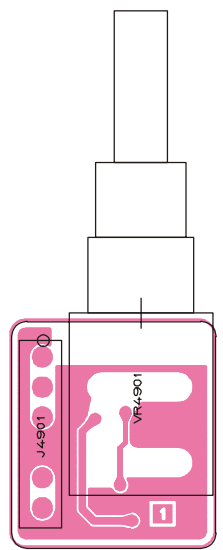
Specifications are subject to change without notice, and are guaranteed within amateur bands only.

Frequency ranges vary according to transceiver version; check with your dealer.

Circuit Diagram



Parts Layout



Side A



Side B

Parts List

REF.	DESCRIPTION	VALUE	V/W	TOL.	MFR'S DESIG	VXSTD P/N	VERS.	LOT.	SIDE	LAY ADR
*** VR UNIT ***										
	PCB with Components					CB1359001				
	P.C.B. W/O COMP.					FR0061200		1-		
VR4901	POT.				RK0972210 10KB/10KA	J62800139		1-	A	